

PRELIMINARY
AMENDMENT
OF CLAIMS

CLAIMS

1. Joint for the angular connection of hollow profile members intended to form door/window profile frames and the like, wherein the edges of the hollow profile members have been previously cut at an angle such as to obtain a matching contact following the assembly thereof, the joint comprising
- 5 a **slide base portion (1)** with an upper first flat basement (1a) with a centrally located first cavity (1b) and with first side parts symmetrically extending on either side of said first flat basement (1a), each one of said first side parts having outer planar surfaces (1e) able to come into sliding contact
- 10 with a wall of each one of a pair of chambers (13a,13b) of the hollow profile members being brought together for connection,
- a **mobile portion (2)** with an upper second flat basement (2a) with a centrally located second cavity (2b) and with second side parts
- 15 symmetrically extending on either side of said second flat basement (2a), said first and second side parts being symmetrically arranged on either side of a plane of symmetry (x-x') passing through the plane of matching contact of the previously cut edges of said hollow profile members, said mobile portion (2) comprising upwardly extending sides (2e) on either side thereof
- 20 terminating at sharp edges (2g), said sharp edges (2g) being adapted to produce an indentation effect into the walls of chambers (13a,13b) and
- a **bolt (3)** being employed in a tightening process of the joint, said upwardly extending sides (2e) of said mobile portion (2) being oriented in a direction substantially parallel to the plane of symmetry (x-x'), said bolt (3) being
- 25 able to pass through a hole (11a,b) of the hollow profile members lying at said plane of symmetry (x-x'), said bolt being able to be screwed to exert an upwardly pushing force onto said mobile portion (2) until said sharp edges

(2g) thereof indent the walls of the profile members being connected,
characterized in that:

each one of said first side parts comprising a first section (1c) extending into a second convergent surface (1d);

5 said mobile portion (2) having a configuration similar to the configuration of said slide base portion (1),

each one of said second side parts comprising planar side surfaces (2c) and (2d), each with a length generally equivalent to the length of underlying corresponding said first section (1c) and said second convergent
 10 surface (1d) of said slide base portion (1),

said mobile portion (2) being superimposed onto said slide base portion (1) so that said second flat basement (2a) is oriented parallel above said underlying first flat basement (1a) in a direction perpendicular to said plane of symmetry (x-x').

15 2. Joint for the angular connection of hollow profile members as claimed in above claim 1, characterized in that said slide base portion (1) further including upwardly bent legs (1e') following a configuration similar to said upwardly extending sides (2e) of said mobile portion (1), said upwardly bent legs (1e') forming recessions allowing tight fitting therein of said upwardly
 20 extending sides (2e) of said sheet metal portion (1), wherein following assembly and introduction of said joint within a junction corner of the hollow profile members being connected, screwing of said bolt (3) leads to said sharp edges (2g) of said mobile portion (2) contacting the walls of said corresponding chambers (13a, 13b) of the profiles being connected, self
 25 alignment through perfect convergence of the profiles being connected along the axis of symmetry (x-x') and indentation of said sharp edges (2g) of said sheet metal mobile portion (2) into the walls of said corresponding chambers (13a, 13b) of the profiles being connected after said upwardly

extending sides (2e) of said mobile portion (2) have been deflected relatively to said second side parts thereby leading to resilient stresses uniformly applied on either side of the joint being stored in said mobile portion (2), said resilient stresses thereby maintaining the joint in a tightened
5 condition and the profile members rigidly connected.

3. Joint for the angular connection of hollow profile members as claimed in above claim 1, characterized by that said sharp edges (2g) of said mobile portion (2) producing the indentation effect may alternatively take the form of an arrangement of tooth or pointed pin protrusions or razor edge
10 like sharp surfaces, said arrangement of tooth or pointed pin protrusions or razor edge like sharp surfaces taking the form of a single acting indentation effective surface or constituted by a pair of adjacently acting indentation effective surfaces.

4. Joint for the angular connection of hollow profile members as claimed
15 in above claim 3, characterized by that said sharp edges (2g) of said mobile portion (2) producing the indentation effect are included in an independent plate item (15), said plate item (15) being introduced into a recession being formed at the terminals of said upwardly extending sides (2e) of said mobile portion (2).

20 5. Joint for the angular connection of hollow profile members as claimed in above claim 1, characterized by that said second side parts of said mobile portion (2) end at a bent structure thereby forming a recession (17) for the engagement of a pivotally mounted wire (16) made from steel, said pivotally mounted wire (16) having the form of a Π section with the legs
25 thereof bent to upwardly extending members with sharp edges (16g) producing the profile wall indentation effect and by that said slide base portion (1) being made in two identical portions, symmetrically on either side of said plane of symmetry (x-x'), said two identical portions being

pivotally connected around a pivotal axis (60) thereby being appropriate for the connection of hollow profiles forming varying angles at the junction thereof and said sheet metal mobile portion (2) being also adjustable to profile connections at varying angles by movement of said pivotally
 5 mounted wire (16).

6. Joint for the angular connection of hollow profile members as claimed in above claim 1, characterized by that said bolt (3) passing through a hole (11a,b) lying at said plane of symmetry (x-x') and exerting when being screwed an upwardly pushing force onto said sheet metal mobile portion (2)
 10 until said sharp edges (2g) thereof indent the relatively softer walls of the profile members being connected, passes through an internally threaded hole at said centrally located second cavity (2b) of said mobile portion (2) and subsequently stops by contact of a sharp edge (3b) thereof onto the coaxially underlying said first cavity (1b) of said base portion (1).

15 7. Joint for the angular connection of hollow profile members as claimed in above claim 6, characterized by that said internally threaded hole at said centrally located second cavity (2b) of said mobile portion (2) is being formed by either expansion of the sheet metal at said second cavity (2b) into a cylindrical collar (19) that is subsequently internally threaded or by the
 20 alternative addition, onto said second basement (2a), of either an independent plate (18) having a planar surface (18a) with dimensions such as to fit onto said second basement (2a) of said mobile portion (2) and a central hole (18b) that is internally threaded and coincides with a hole being opened at said centrally located second cavity (2b) on said second basement
 25 (2a) or of an internally threaded cylindrical collar (48) with a body portion (48a) and a central hole (48b) coinciding with said hole being opened at said centrally located second cavity (2b) on said second basement (2a) of the sheet metal portion (2).

8. Joint for the angular connection of hollow profile members as claimed in above claim 1, characterized by that said bolt (3) passing through a hole (11a,b) lying at said plane of symmetry (x-x') and exerting when being screwed an upwardly pushing force onto said mobile portion (2) until said sharp edges (2g) thereof indent the relatively softer walls of the profile members being connected, passes through an internally threaded hole at said centrally located first cavity (1b) of said slide base portion (1), a sharp edge (3b) of said bolt (3) being brought in contact with the coaxially overlying said second cavity (2b) of said mobile portion (2), wherein said upwardly pushing force exerted onto said sheet metal mobile portion (2) is the force being exerted onto said second cavity (2b) of said sheet metal mobile portion (2).

9. Method of angular connection of hollow profile members intended to form door/window profile frames and the like, wherein the edges of the hollow profile members have been previously cut at an angle such as to obtain a matching contact following the assembly thereof and comprise a single hole (11a,b) made of two halves (11a), (11b), one half in each of the hollow profile members being brought together for an angular connection, comprising the following steps:

a. inserting a previously assembled joint with a central bolt (3) passing through an upper sheet metal mobile portion (2) and stopping at an underlying base portion (1) thereof, through an opening (12a) of a chamber (13a) of a first one of the pair of hollow profile members to be connected, wherein half of the joint is introduced in this first one of the pair of profile members,

b. bringing a chamber (13b) of the second one of the pair of hollow profile members to be connected in a position wherein the protruding half of the joint is slidably inserted therein, thereby obtaining an accurate

coincidence of the previously cut edges of the hollow profile members to be connected and further obtaining said centrally located single angular hole (11a,b) by coincidence of the two halves (11a, 11b),

5 c. employment of a key (14) passing through said single angular hole (11a,b) and rotation by means of the same of said bolt (3) lying coaxially along the plane of connection of the two hollow profile members that have been connected, until the sharp edges (2g) of upwardly extending sides of the sheet metal portion (2) contact the walls of said chambers (13a, 13b), and

10 d. further screwing of said bolt (3) to obtain self alignment through perfect convergence of the profiles being connected along the axis of symmetry x- x' and indentation of said sharp edges (2g) of said sheet metal mobile portion (2) into the walls of said corresponding chambers (13a, 13b) of the profiles being connected whilst the upwardly extending sides (2e) of
15 the sheet metal mobile portion (2) are deflected relatively to the side surfaces (2d) of the sheet metal mobile portion (2) thereby leading to resilient stresses uniformly applied on either side of the joint being stored in said sheet metal mobile portion (2), said resilient stresses thereby maintaining the joint in a tightened condition and the profile members
20 rigidly connected.